INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/014770

A. CLASSIFICATION OF SUBJECT MATTER
C12N1/21 C12N15/31 C12N15/62 C12N15/63 C07K14/22
C07K16/12 C07K14/315 A61K39/095

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
C12N C12R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, BIOSIS, EMBASE, EMBL, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	BOS MARTINE P ET AL: "Identification of an outer membrane protein required for the transport of lipopolysaccharide to the bacterial cell surface" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE. WASHINGTON, US, vol. 101, no. 25, 22 June 2004 (2004-06-22), pages 9417-9422, XP002319845 ISSN: 0027-8424 cited in the application the whole document ----- -/--	1-7,11, 49-54, 56-62

[X] Further documents are listed in the continuation of box C.

[ ] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 July 2005	29. 11. 2005

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Huse, I

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Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BRAUN MARTIN ET AL: "Imp/OstA is required for cell envelope biogenesis in Escherichia coli" MOLECULAR MICROBIOLOGY, vol. 45, no. 5, September 2002 (2002-09), pages 1289-1302, XP002337829 ISSN: 0950-382X cited in the application the whole document	1-7,11, 49-54, 56-62
X	GENEVROIS STEPHANIE ET AL: "The Omp85 protein of Neisseria meningitidis is required for lipid export to the outer membrane." EMBO (EUROPEAN MOLECULAR BIOLOGY ORGANIZATION) JOURNAL, vol. 22, no. 8, 15 April 2003 (2003-04-15), pages 1780-1789, XP002337830 ISSN: 0261-4189 the whole document	1-7,11, 49-54, 56-62
A	STEEGHS L ET AL: "Meningitis bacterium is viable without endotoxin." NATURE. 2 APR 1998, vol. 392, no. 6675, 2 April 1998 (1998-04-02), pages 449-450, XP002338028 ISSN: 0028-0836 cited in the application the whole document	
A	MORLEY S L ET AL: "Vaccine prevention of meningococcal disease, coming soon?" VACCINE, BUTTERWORTH SCIENTIFIC. GUILDFORD, GB, vol. 20, no. 5-6, 12 December 2001 (2001-12-12), pages 666-687, XP004312511 ISSN: 0264-410X abstract paragraph 11.2.	

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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. [X] Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claim 61 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

2. [ ] Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. [ ] Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. [ ] As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. [ ] As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. [ ] As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. [X] No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

2-7(complete); 1, 11, 49-54 (in part)

Remark on Protest

[ ] The additional search fees were accompanied by the applicant's protest.

[ ] No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 2-7 (complete); 1, 11, 49-54, 56-62 (in part)

A gram negative bacterium in which the expression of a protein involved in LPS transport to the outer membrane is functionally downregulated such that the level of LPS in the outer membrane is decreased compared to the wild-type, the protein involved in LPS transport being Imp; an outer membrane vesicle preparation in which the level of LPS is decreased; a method for producing said outer membrane vesicle preparation by culturing the above gram negative bacterium; a pharmaceutical composition comprising the gram negative bacterium or the outer membrane vesicle preparation; a method for preventing or treating a gram negative bacterial infection using the outer membrane vesicle preparation or pharmaceutical composition; use of the gram negative bacterium or the outer membrane vesicle preparation in the preparation of a medicament.

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2. claims: 8-10 (complete); 1, 11, 49-54, 56-62 (in part)

Idem as invention 1, the protein involved in LPS transport to the outer membrane being MsbA.

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3. claims: 12-48, 55 (complete); 49-54, 56-62 (in part)

A chimeric protein comprising a part which is derived from an Imp protein and a part which is derived from a different protein; a polynucleotide encoding the chimeric protein; an expression vector; a host cell; an outer membrane vesicle preparation in which the level of LPS is decreased; a method for producing the above chimeric protein and/or outer membrane vesicle preparation by culturing the above host cell; a pharmaceutical composition comprising the chimeric protein or the outer membrane vesicle preparation; a method for preventing or treating a gram negative bacterial infection using the chimeric protein, outer membrane vesicle preparation or pharmaceutical composition; use of the chimeric protein or the outer membrane vesicle preparation in the preparation of a medicament.
